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REINHARDT, ZACHARY THEODORE				
ART UNIT		PAPER NUMBER		
2624				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

vera.kublanov@philips.com

debbie.henn@philips.com

marianne.fox@philips.com

Office Action Summary

Application No.

10/595,802

Applicant(s)

WIEMKER ET AL.

Examiner

ZACHARY REINHARDT

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-856)
Paper No(s)/Mail Date ____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 1. Claims 1 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The term "close" in claim 10 is a relative term which renders the claim indefinite. The term "close" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Further it is unclear what specifically the applicant means by the phrase "lie close to." For the purposes of this Office Action it is assumed that applicant means data that is similar in quantity or value to the "established parameters," as opposed to data that is in a physical location near to the "established parameters."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 3, 4, 5, 7, and 10 are rejected under 35 U.S.C. 102(e) as anticipated by Murao (US 6,925,199).

As to claim 1, Murao discloses “An apparatus for assisting the diagnostic evaluation of images of a potentially pathological structure...” (See Fig. 1)

Murao further discloses “an analysis module, with which a set of characteristic, structure-related parameters (p.sub.1.sup.0, p.sub.2.sup.0, . . .) can be established from an image of the structure...” (“At the lesion feature quantity extracting part 18, lesion feature quantities representing image-wise similarities by statistics are extracted, for all of the lesion positions detected by the lesion position detecting part 16.” (Column 4, Lines 48-51))

Murao further discloses “a database module, which contains stored data records relating to structures of the same kind, which data records document respective examples with their associated characteristic parameters (p.sub.1, p.sub.2, . . .) and with additional information (q.sub.1, q.sub.2, . . .) wherein for a predetermined set of characteristic parameters (p.sub.1.sup.0, p.sub.2.sup.0, . . .) the database module is

able to establish those of said data records (4) whose characteristic parameters (p.sub.1, p.sub.2, . . .) lie close to the predetermined set;" ("Stored in the feature DB 12 are lesion feature quantities extracted from the image data. The lesion feature quantities are information for enabling a retrieval of image data by utilizing image-wise similarities, and include a lesion size (volume or area), a shape (spherical degree or circular degree), a brightness statistic (such as average and/or a deviation), and a texture statistic (such as spatial frequency resolution, Fourier transform, and wavelet transform). The lesion feature quantities are bundled into feature data related to the patient ID and the inspection ID. Further, an index of the feature DB 12 is registered with at least a target site, an inspection date and feature data of pertinent, as shown in FIG. 3." (Column 4, Lines 10-23) (The "patient ID, and inspection ID is the logical equivalent to "additional information.") "According to such a constitution, similarities between the diagnosis target image and each of the reference images are defined based on the image-wise similarities, respectively, so that reference images are sequentially retrieved from those having higher similarities. Thus, those reference images having higher possibilities of usefulness are referred to when interpreting the diagnosis target image, to thereby avoid useless reference and to thereby improve the diagnosis efficiency." (Column 2, Lines 38-47) The "similarities" and subsequent order ("sequentially retrieved") are logically equivalent to "establishing those of said data records whose parameters lie close to the predetermined set.")

Murao further discloses "an output module, for further processing of the established data records." ("At the disease name probability calculating part 22,

probabilities of disease names of the organ as the diagnosis target are calculated, based on the similarities calculated by the lesion feature quantity matching part 20. Then, the disease names and probabilities thereof are displayed in a display device (not shown), to thereby support the doctor in conducting diagnosis." (Columns 4-5 , Lines66-67, 1-5))

As to claim 2, Murao discloses "the images of the structure are X-ray images, MRI images or ultrasound images." ("When tomograms are taken by an X-ray CT apparatus, CT images are stored in the image DB 10 and the lesion positions are detected by the lesion position detecting part 16." (Column 5, Lines 10-13))

As to claim 3, Murao discloses "that the structure is a potential tumor." ("Meanwhile, in case of a topical lesion such as a tumor, the lesion position is detected such as by searching for a spherical portion having a higher brightness and a diameter equal to or less than a predetermined value." (Column 6, Lines 5-8))

As to claim 4, Murao discloses "that the parameters (p.sub.1, p.sub.2, . . . ; p.sub.1.sup.0, p.sub.2.sup.0, . . .) related to the structure (8) comprise at least one of the following variables: volume" ("Stored in the feature DB 12 are lesion feature quantities extracted from the image data. The lesion feature quantities are information for enabling a retrieval of image data by utilizing image-wise similarities, and include a lesion size (volume or area)," (Column 4, Lines 10-14)

As to claim 5, Murao discloses "that the additional information (q.sub.1, q.sub.2, . . .) comprises diagnostic results, especially biopsies, and/or disease courses." ("At step 8, the findings being the final diagnosis result of a doctor are registered into the finding DB 14." (Column 7, Lines 31-32)

As to claim 7, Murao discloses "that the data records comprise at least one image of the associated structure." ("In this case, it is preferable to register the diagnosis target image and the feature quantities thereof into the database." (Column 2, Lines 17-18))

As to claim 10, the steps of the method taught by Murao that meet the limitations of claim 1 read on the method in claim 10.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murao (US 6,925,199) in view of Collins et al. (US 6,801,645).

As to claim 6, Murao does not disclose "that a metric is defined on the area of the characteristic parameters (p.sub.1, p.sub.2, . . . ; p.sub.1.sup.0, p.sub.2.sup.0, . . .)."

However, Collins discloses "that a metric is defined on the area of the characteristic parameters (p.sub.1, p.sub.2, . . . ; p.sub.1.sup.0, p.sub.2.sup.0, . . .)." ("Those micro calcifications remaining after the classifier are represented by their centroid location and subsequently grouped into clusters." (Column 2, Lines 2-5))

Murao discloses an apparatus for assisting with diagnostic evaluation of images.

Collins discloses calculating the location of characteristics within the image.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Collins' location calculation with Murao's apparatus by determining the location of the characteristics taken from the image. The motivation for doing so would have been the pursuit of complete characterization of the region of interest. The applicability of Murao's apparatus and Collins' modification to diagnostic image evaluation provides a reasonable expectation of success of their combination. Such a modification is advantageous as it allows more complete characterization of the region of interest.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murao (US 6,925,199) in view of Comaniciu et al. ("Image-guided decision support system for pathology").

As to claim 8, Mauro does not disclose "that [the apparatus] contains a display device for displaying an image of the structure and/or information from data records."

However, Comaniciu discloses "that [the apparatus] contains a display device for displaying an image of the structure and/or information from data records." (See Fig. 1, Page 215)

Murao discloses an apparatus for assisting with diagnostic evaluation of images.

Comaniciu discloses displaying the data on a display device.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Comaniciu's display with Murao's apparatus by displaying the image under consideration as well as the determined characteristics. The motivation for doing so would have been the pursuit of presentation to the individual performing the diagnosis. The applicability of Murao's apparatus and Comaniciu's modification to diagnostic image evaluation provides a reasonable expectation of success of their combination. Such a modification is advantageous as it allows the individual performing the diagnosis to see the region of interest while performing the diagnosis.

As to claim 9, Mauro does not disclose "that [the apparatus] contains input means for an interactive analysis of the image of the structure in the analysis module."

However, Comaniciu discloses "that [the apparatus] contains input means for an interactive analysis of the image of the structure in the analysis module." ("Most input commands can be formulated by voice or graphical input. Currently, the system employs a Microsoft speech recognizer engine with finite state grammar." (Page 221, Lines 29-32))

The motivation to combine is the same as claim 8.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wang (US 6,477,262) discloses a similar computer aided diagnosis method and system. Rogers et al. (US 6,556,699) discloses a method of calculating the location of centroids of clustered micro calcifications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZACHARY REINHARDT whose telephone number is (571)270-1414. The examiner can normally be reached on M-R 730-600.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Repko can be reached on 5712728624. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ZACHARY REINHARDT/ 07/27/2011

/Jingge Wu/

Primary Examiner, Art Unit 2624